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Activity 1 Documentation

Pulling an Image

1. run 'docker images' to see current images in my machine

```
PS C:\WINDOWS\system32> docker images
REPOSITORY      TAG        IMAGE ID        CREATED        SIZE
ubuntu          16.04      aefd7f02ae24    3 weeks ago    134MB
```

2. Search for images using `docker search <keyword>`

```
PS C:\WINDOWS\system32> docker search ubuntu
NAME                                                DESCRIPTION                                      STARS    OFFICIAL    AUTOMATED
ubuntu                                              Ubuntu is a Debian-based Linux operating sys…    12248    [OK]
dorowu/ubuntu-desktop-lxde-vnc                      Docker image to provide HTML5 VNC interface …    532                  [OK]
websphere-liberty                                   WebSphere Liberty multi-architecture images …    270      [OK]
rastasheep/ubuntu-sshd                              Dockerized SSH service, built on top of offi…    251                  [OK]
consol/ubuntu-xfce-vnc                              Ubuntu container with "headless" VNC session…    240                  [OK]
ubuntu-upstart                                      Upstart is an event-based replacement for th…    110      [OK]
1and1internet/ubuntu-16-nginx-php-phpmyadmin-mysql-5  ubuntu-16-nginx-php-phpmyadmin-mysql-5          50                  [OK]
open-liberty                                        Open Liberty multi-architecture images based…    45       [OK]
ubuntu-debootstrap                                  debootstrap --variant=minbase --components=m…    44       [OK]
i386/ubuntu                                         Ubuntu is a Debian-based Linux operating sys…    25
solita/ubuntu-systemd                               Ubuntu + systemd                                 24                  [OK]
1and1internet/ubuntu-16-apache-php-5.6              ubuntu-16-apache-php-5.6                         14                  [OK]
1and1internet/ubuntu-16-apache-php-7.0              ubuntu-16-apache-php-7.0                         13                  [OK]
1and1internet/ubuntu-16-nginx-php-phpmyadmin-mariadb-10  ubuntu-16-nginx-php-phpmyadmin-mariadb-10    11                  [OK]
1and1internet/ubuntu-16-nginx-php-5.6-wordpress-4   ubuntu-16-nginx-php-5.6-wordpress-4             9                   [OK]
1and1internet/ubuntu-16-nginx-php-5.6               ubuntu-16-nginx-php-5.6                          8                   [OK]
1and1internet/ubuntu-16-apache-php-7.1              ubuntu-16-apache-php-7.1                         7                   [OK]
1and1internet/ubuntu-16-nginx-php-7.0               ubuntu-16-nginx-php-7.0                          4                   [OK]
pivotaldata/ubuntu                                  A quick freshening-up of the base Ubuntu doc…    4
1and1internet/ubuntu-16-nginx-php-7.1-wordpress-4   ubuntu-16-nginx-php-7.1-wordpress-4             3                   [OK]
pivotaldata/ubuntu16.04-build                       Ubuntu 16.04 image for GPDB compilation          2
smartentry/ubuntu                                   ubuntu with smartentry                           1                   [OK]
1and1internet/ubuntu-16-sshd                        ubuntu-16-sshd                                   1                   [OK]
pivotaldata/ubuntu-gpdb-dev                         Ubuntu images for GPDB development               1
1and1internet/ubuntu-16-php-7.1                     ubuntu-16-php-7.1                                1                   [OK]
PS C:\WINDOWS\system32>
```

3. Run 'docker pull ubuntu:16.10' to pull an image of Ubuntu 16.10.

```
PS C:\WINDOWS\system32> docker pull ubuntu:16.10
16.10: Pulling from library/ubuntu
dca7be20e546: Pull complete
40bca54f5968: Pull complete
61464f23390e: Pull complete
d99f0bcd5dc8: Pull complete
120db6f90955: Pull complete
Digest: sha256:8dc9652808dc091400d7d5983949043a9f9c7132b15c14814275d25f94bca18a
Status: Downloaded newer image for ubuntu:16.10
docker.io/library/ubuntu:16.10
```

4. Run 'docker images' again to check current images.

```
ubuntu          16.04      aefd7f02ae24    3 weeks ago    134MB
ubuntu          16.10      7d3f705d307c    3 years ago    107MB
```

5. Run 'docker rmi <IMAGE ID>' to remove the Ubuntu 16.10 image

```
PS C:\WINDOWS\system32> docker rmi 7d3f705d307c
Untagged: ubuntu:16.10
Untagged: ubuntu@sha256:8dc9652808dc091400d7d5983949043a9f9c7132b15c14814275d25f94bca18a
Deleted: sha256:7d3f705d307c7c225398e04d4c4f8512f64eb8a65959a1fb4514dfde18a047e7
Deleted: sha256:d9db289b9342d9617596cd6ee3bba988629e24d9afa5db4e4b0e4e491c65007d
Deleted: sha256:a87725e8597b97f2399bc3aa50b0e2eec903b8ce19055668d3befb012918205c
Deleted: sha256:38cf10a2801529348366953e9b933d3524360dedc91d3e4d5d7f941da0c973c9
Deleted: sha256:61172966249d43026dbd017eec3a9575e37bddf8a269a9f09ecb559d7bfe7fef
Deleted: sha256:57145c01eb80040fdd0a24cde20af4788605b49593188d4f7efab099af89a08e
PS C:\WINDOWS\system32> docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        16.04     aefd7f02ae24   3 weeks ago    134MB
```

Running Containers

1. Run 'docker run ubuntu:16.04 /bin/echo 'Hello world!'. This creates a container from the image specified then runs the simple '/bin/echo' to print 'Hello world!'.

```
PS C:\WINDOWS\system32> docker run ubuntu:16.04 /bin/echo 'Hello world!'
Hello world!
```

2. Check containers 'using docker ps -a'. The '-a' tag is to show stopped containers.

```
CONTAINER ID   IMAGE          COMMAND                 CREATED         STATUS                 PORTS     NAMES
32864a6476b0   ubuntu:16.04   "/bin/echo 'Hello wo…"  2 minutes ago   Exited (0) 2 minutes ago         wizardly_faraday
```

3. Run 'docker run -it ubuntu:16.04 /bin/bash'and run some commands inside the ubuntu container.

```
PS C:\WINDOWS\system32> docker run -it ubuntu:16.04 /bin/bash
root@0a90e730b9d7:/# pwd
/
root@0a90e730b9d7:/# ls
bin  boot  dev  etc  home  lib  lib64  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
root@0a90e730b9d7:/# exit
exit
PS C:\WINDOWS\system32>
```

4. Run 'docker run -d ubuntu:16.04 /bin/sleep 3600' to run in detached mode. Container will continue to run in background.

```
PS C:\WINDOWS\system32> docker run -d ubuntu:16.04 /bin/sleep 3600
cbc106fb388deb49f74d8c27e5f373012382a7d367356b29ea9be509a78c9d4d
PS C:\WINDOWS\system32> docker ps
CONTAINER ID   IMAGE          COMMAND              CREATED         STATUS         PORTS     NAMES
cbc106fb388d   ubuntu:16.04   "/bin/sleep 3600"    7 seconds ago   Up 4 seconds             ecstatic_chatterjee
PS C:\WINDOWS\system32>
```

5. Run 'docker exec' to run a command within a container that is already running.

```
PS C:\WINDOWS\system32> docker ps
CONTAINER ID   IMAGE          COMMAND              CREATED         STATUS         PORTS     NAMES
cbc106fb388d   ubuntu:16.04   "/bin/sleep 3600"    2 minutes ago   Up 2 minutes             ecstatic_chatterjee
PS C:\WINDOWS\system32> docker exec -it cbc106fb388d /bin/bash
root@cbc106fb388d:/# ps aux
USER       PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.0   4372   804 ?        Ss   18:23   0:00 /bin/sleep 3600
root         8  0.3  0.0  18232  3292 pts/0    Ss   18:26   0:00 /bin/bash
root        19  0.0  0.0  34420  2900 pts/0    R+   18:26   0:00 ps aux
root@cbc106fb388d:/# exit
exit
PS C:\WINDOWS\system32> docker ps
CONTAINER ID   IMAGE          COMMAND              CREATED         STATUS         PORTS     NAMES
cbc106fb388d   ubuntu:16.04   "/bin/sleep 3600"    4 minutes ago   Up 4 minutes             ecstatic_chatterjee
PS C:\WINDOWS\system32>
```

6. Use 'docker stop' to stop our earlier command to run the docker container for an hour.

```
PS C:\WINDOWS\system32> docker ps
CONTAINER ID   IMAGE          COMMAND              CREATED          STATUS          PORTS        NAMES
cbc106fb388d   ubuntu:16.04   "/bin/sleep 3600"    4 minutes ago    Up 4 minutes                 ecstatic_chatterjee
PS C:\WINDOWS\system32> docker stop cbc106fb388d
cbc106fb388d
PS C:\WINDOWS\system32> docker ps -a
CONTAINER ID   IMAGE          COMMAND              CREATED          STATUS                     PORTS        NAMES
cbc106fb388d   ubuntu:16.04   "/bin/sleep 3600"    7 minutes ago    Exited (137) 26 seconds ago             ecstatic_chatterjee
0a90e730b9d7   ubuntu:16.04   "/bin/bash"          12 minutes ago   Exited (0) 10 minutes ago               zen_swartz
32864a6476b0   ubuntu:16.04   "/bin/echo 'Hello wo…"  17 minutes ago   Exited (0) 17 minutes ago            wizardly_faraday
PS C:\WINDOWS\system32> docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
PS C:\WINDOWS\system32>
```

Removing Containers

1.) Use 'docker rm' command to remove stopped containers.

```
PS C:\WINDOWS\system32> docker ps -a
CONTAINER ID   IMAGE          COMMAND              CREATED          STATUS                     PORTS        NAMES
cbc106fb388d   ubuntu:16.04   "/bin/sleep 3600"    9 minutes ago    Exited (137) 2 minutes ago              ecstatic_chatterjee
0a90e730b9d7   ubuntu:16.04   "/bin/bash"          14 minutes ago   Exited (0) 12 minutes ago               zen_swartz
32864a6476b0   ubuntu:16.04   "/bin/echo 'Hello wo…"  19 minutes ago   Exited (0) 19 minutes ago            wizardly_faraday
PS C:\WINDOWS\system32> docker rm cbc106fb388d
cbc106fb388d
PS C:\WINDOWS\system32> docker ps -a
CONTAINER ID   IMAGE          COMMAND              CREATED          STATUS                     PORTS        NAMES
0a90e730b9d7   ubuntu:16.04   "/bin/bash"          15 minutes ago   Exited (0) 14 minutes ago               zen_swartz
32864a6476b0   ubuntu:16.04   "/bin/echo 'Hello wo…"  20 minutes ago   Exited (0) 20 minutes ago            wizardly_faraday
PS C:\WINDOWS\system32>
```

```
PS C:\WINDOWS\system32> docker ps -a
CONTAINER ID   IMAGE          COMMAND              CREATED          STATUS                     PORTS        NAMES
0a90e730b9d7   ubuntu:16.04   "/bin/bash"          15 minutes ago   Exited (0) 14 minutes ago               zen_swartz
32864a6476b0   ubuntu:16.04   "/bin/echo 'Hello wo…"  20 minutes ago   Exited (0) 20 minutes ago            wizardly_faraday
PS C:\WINDOWS\system32> docker rm $(docker ps -a -q)
0a90e730b9d7
32864a6476b0
PS C:\WINDOWS\system32> docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
PS C:\WINDOWS\system32>
```